

**ARIZONA GAME AND FISH DEPARTMENT  
HERITAGE DATA MANAGEMENT SYSTEM**

**Plant Abstract**

**Element Code:** PDFAB0F2H2

**Data Sensitivity:** No

**CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE**

**NAME:** *Astragalus cremnophylax* var. *myriorrhaphis*

**COMMON NAME:** Sentry Milk Vetch; Cliff Milk Vetch

**SYNONYMS:**

**FAMILY:** Fabaceae

**AUTHOR, PLACE OF PUBLICATION:** Barneby, R.C. 1979. *Dragma Hippomanicum* IV. *Brittonia* 31(4): 459-463.

**TYPE LOCALITY:** Buckskin Mountains, west escarpment, Rock Canyon (second canyon south of Winter Road), 6200 feet elevation.

**TYPE SPECIMEN:** New York Botanical Garden. N.H. Holmgren, P.K. Holmgren and R.C. Barneby (9145) 23 May 1979.

**TAXONOMIC UNIQUENESS:** *Astragalus* is the largest genus of flowering plants in Arizona with over 100 species within the state (Kearney and Peebles 1960). *A. cremnophylax* is subdivided into three varieties, all occurring in narrowly defined habitats, locally endemic, and isolated from each other (Phillips 1992).

**DESCRIPTION:** Dwarf plant forming 2.5-25.0 cm (1.0-10.0 in.) diameter mats less than 2.5 cm (1.0 in.) high. Stems short and creeping with compound leaves, 5-11 leaflets, each approximately 1 cm (0.4 in.) long. Gray-green in color. **Rachises of dead leaves are retained.** Seed pod is obliquely egg shaped and dorsally depressed with dense hairs.

**AIDS TO IDENTIFICATION:** Rachises of old leaves are retained, becoming stiff and upright giving plant a spiny look and feel. Spinulose points on adult petioles distinguish this variety from *A.c. cremnophylax*. Mature leaves late in growth cycle are 1.5 to 3.5 cm (0.6-1.4 in.) long with 7 to 11 leaflets.

Superficially, may resemble a *Lesquerella* in the same habitat, but *Lesquerella* has simple leaves.

**ILLUSTRATIONS:** Line drawings of habit, detached leaf, pod and transverse section of pod (Barneby 1979:462)

**TOTAL RANGE:** Buckskin Mountains and Cape Royal, Kaibab Plateau, Coconino County, Arizona.

**RANGE WITHIN ARIZONA:** See "TOTAL RANGE:"

**SPECIES BIOLOGY AND POPULATION TRENDS**

**GROWTH FORM:** Prostrate Herbaceous Perennial. Dwarf, mat-forming habit.

**PHENOLOGY:** Late April to early May. Sets seed late May to June.

**BIOLOGY:** Species unique in habitat preference; existing in only a few limited, highly isolated populations. Seedlings frequently establish in cushions of older or dead plants of the same species. Most seeds do not travel beyond mat of parent plant.

**HABITAT:** Crevices and depressions with little or no soil on benches, cliff ledges and flat-topped pinnacles. Typically on points which extend out from canyon edge escarpment beyond detritus which slough from talus slopes. May also occur on vertical canyon walls below these points.

**ELEVATION:** 6,200 - 7,900 ft. (1891-2410 m).

**EXPOSURE:** Open, with little or no shade.

**SUBSTRATE:** Exposed ledges of white to gray-white Kaibab limestone (a very specific Kaibab limestone member) with abundant large nodules (inclusions) and fossils (primarily brachiopods).

**PLANT COMMUNITY:** Great Basin Conifer Woodland; Great Basin Desertscrub. Surrounding community dominated by pinyon pine, juniper, sagebrush, and cliffrose. Unlike *A.c. cremnophylax*, *A.c. myriorrhaphis* is not co-occurring with *Petrophytum caespitosum*.

**POPULATION TRENDS:** Apparently stable. As of spring 1992, there were approximately 700 individuals *A.c. myriorrhaphis* known.

## **SPECIES PROTECTION AND CONSERVATION**

**ENDANGERED SPECIES ACT STATUS:** None (USDI, FWS 1996)  
[Category 2 USDI, FWS 1993]  
[Category 2 USDI, FWS 1990]  
[3C USDI, FWS 1985]

**OTHER STATUS:** Salvage Restricted (ARS 1993)  
Forest Service Sensitive (USDA, FS Region 3 1999)  
[Forest Service Sensitive USDA, FS Region 3 1990]  
Bureau of Land Management Sensitive (USDI, BLM AZ 2000)

**MANAGEMENT FACTORS:** An informal trail traverses population at Cape Royal. Very few threats have been identified for Forest Service population.

**CONSERVATION MEASURES TAKEN:** Surveys conducted on Kaibab National Forest, North Kaibab Ranger District 1990-91. Monitoring plots established at Buckskin Mountain population under USFS contract.

**SUGGESTED PROJECTS:** Continued monitoring. Additional surveys are needed along outcroppings of the specific Kaibab limestone member.

**LAND MANAGEMENT/OWNERSHIP:** BLM - Arizona Strip Field Office; USFS - Kaibab National Forest (North Kaibab District); State Land Department. Possibly on Grand Canyon National Park, National Park Service.

## **SOURCES OF FURTHER INFORMATION**

**LITERATURE CITATIONS:**

- Arizona Revised Statutes, Chapter 7. 1993. Arizona Native Plant Law. Appendix A:8.
- Barneby, R.C. 1948. *Pugillis astragalorum* IX: Novelties in Batidophaca Rydb. Leaflets of western botany. 5(5): 82-85.
- Barneby, R.C. 1964. Atlas of North American *Astragalus*. Part II. Memoirs of the New York Botanical Garden 13: 1005.
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- Kearney, T.H., R.H. Peebles with collaborators. 1960. Arizona flora. Second edition with supplement by J.T. Howell, E. McClintock and collaborators. University of California Press, Berkeley. p.445.
- Phillips, A.M. III, B.G. Phillips, N. Brian, L.T. Green III and J. Mazzoni. 1982. Status report: *Astragalus cremnophylax* Barneby. Submitted to U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- Phillips, A.M. III. 1990. Progress report to Kaibab National Forest, Williams, Arizona.
- Phillips, A.M. III. 1992. Distribution and ecology of cliff milk vetch, *Astragalus cremnophylax* var. *myriorrhaphis*, on the Kaibab National Forest. Final report P.O. #43-8156-0-04720, item, 04. Unpublished report for the Kaibab National Forest, Williams, Arizona.
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- USDA, Forest Service Region 3. 1990. Regional Forester's Sensitive Species List.
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- USDI, Bureau of Land Management. 2000. Arizona BLM Sensitive Species List. Instruction Memorandum No. AZ-2000-018.
- USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species. Notice of Review. Federal Register 50(188):00005.
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- USDI, Fish and Wildlife Service. 1993. Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 58(188):51151.

**MAJOR KNOWLEDGEABLE INDIVIDUALS:**

- R.C. Barneby - New York Botanical Garden, New York
- Ralph Gierisch - St. George, Utah
- Art Phillips - private consultant, Flagstaff, Arizona
- Sue Rutman - National Park Service, Organ Pipe National Monument, Arizona

**ADDITIONAL INFORMATION:**

Fall 1991 surveys of the Kaibab National Forest by Art Phillips included searches from Jumpup Point to Willow Point. No plants were found though this appears to be good habitat.

The plants at Cape Royal do not retain the dried leaf rachises. It is possible this is another variety (the fourth) of *Astragalus cremnophylax*.

**Revised:** 1991-12-05 (JGH)  
 1992-05-21 (DBI)  
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